Lecture [1]

FB Group: ASU - FE - CHEP - Freshmen - EPHS 121 - Spring 2013

Mob. Dr. M. ELBANNA [redacted]

EPHS 121

Electricity — Magnitism

100 %

60 % — 40 %

Mid Terms — Lab — Performance — Finals

Quizes — Attendance

* Refrence : Serway 8th edition

Units and Dimensions.

$V = \frac{S}{t}$ m/s

		S.I. Units	Dimension	C.g.S
S	distance	m	L	cm
m	mass	Kg	M	gm
t	Time	s	T	s

* $F = ma = m\frac{v}{t} = m\frac{S}{t^2}$

unit: $Kg.m/s^2$

Dimen.: $M.L.T^{-2}$ or MLT^{-2}

Remember: Energy, work, Torque $= FS$

* Another Important for Dimin: Check the Correctness of the Equation

$x = v_0 t + \frac{1}{2}at^2$

$L = L.T^{-1}T + LT^{-2}T$

∴ This Eq. is not True

* Dimintional Analysis:

If t depends on (m, L, g)

$t = k m L g$

$$t = k\, m^{\alpha} l^{\beta} g^{\gamma}$$

$$T = M^{\alpha} L^{\beta} (L T^{-2})^{\gamma}$$

$$T = M^{\alpha} L^{\beta+\gamma} T^{-2\gamma}$$

$$M^0 L^0 T^1 = M^{\alpha} L^{\beta+\gamma} T^{-2\gamma}$$

$\therefore$ $M \rightarrow \boxed{\alpha = 0}$

$L \rightarrow \beta + \gamma = 0 \Rightarrow \boxed{\beta = \frac{1}{2}}$

$T \rightarrow -2\gamma = 1 \rightarrow \boxed{\gamma = -\frac{1}{2}}$

$$t = k\, m^0 l^{1/2} g^{-1/2}$$

$$\boxed{t = k\sqrt{l/g}}$$

know that from fund.

Q charge

Θ Temp